REMOVAL ACTION WORK PLAN

AT THE

TOLEDO TIE TREATMENT SITE

LOCATED AT

ARCO INDUSTRIAL PARK
TOLEDO, OHIO

FEBRUARY 1998
(Revised April 1998)

PREPARED FOR:

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1.0 INTRODUCTION

1.1 Purpose and Objectives

Kerr-McGee Chemical, LLC (Kerr-McGee) was issued a Unilateral Administrative Order (UAO), dated December 24, 1997, pursuant to Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), pertaining to the Toledo Tie Treatment Site (Site), which is located in and near the Arco Industrial Park in Toledo, Ohio. The Site was formerly operated as a wood treating facility, which primarily used creosote to treat wooden railroad ties. The UAO, with an effective date of January 20, 1998, requires Kerr-McGee to abate an imminent and substantial endangerment to the public health, welfare or environment that may be presented by the actual or threatened release of hazardous substances at or from the Toledo Tie Treatment Site. The following seven tasks have been identified as time-critical by the U.S. Environmental Protection Agency (EPA) as defined in Section V of the UAO (3.1 through 3.7).

1. Develop and implement a site health and safety plan, including an air monitoring plan;
2. Implement appropriate site security measures;
3. Completely contain and recover all the creosote contaminants that are migrating downstream in Williams Ditch and maintain the containment recovery system until such time that the contaminant sources have been removed or permanently controlled; complete containment and recovery shall mean at a minimum (1) daily removal of all visible oil and oil sheen accumulated on the water surface at all current boom locations and (2) the ditch surface should be cleared of ice at all times within a distance of ten feet upstream and downstream of all booms;
4. Identify the immediate source areas of creosote contamination that are contributing to the creosote and related contamination in Williams Ditch;
5. Remove the immediate source areas of hazardous substances or implement engineering controls to prevent the contamination in the source areas from migrating to Williams Ditch and to the surface of Frenchmens Road;
6. Characterize the extent of coal tar creosote contamination in the sediments and water of Williams Ditch;
7. Remove coal tar creosote contamination from Williams Ditch sediments and/or implement additional engineering controls to prevent continued release of contaminants to Williams Ditch.

As described above, this work plan presents an approach and the detailed elements of time-critical actions to meet the requirements of the UAO.

2.0 SITE BACKGROUND & PHYSICAL SETTING

2.1 Site Location and History

The Site encompasses over 50 acres and is located in the City of Toledo, Lucas County, Ohio, as shown on Figure 1. The Site was a railroad tie treating facility owned and operated by Federal Creosoting Company from approximately 1923 to 1959, and American Creosoting Corporation from 1959 to 1962. Operations ceased in 1962 when the Site was sold to the City of Toledo. In 1969, the Site was sold to Arco Realty, Inc., who subdivided the Site into a number of parcels and developed the area into a business and industrial park.

Wooden railroad ties were treated with coal tar creosote at the Site. A site map of the general wood treating operations is shown on Figure 2. Based on review of aerial photographs from years 1950, 1957, 1963 and 1969, it appears that untreated lumber was stored in the eastern section of the Site, and treated wood was stored in the western section of the Site. It appears that treated wood was stored on flat bed rail cars and allowed to drip dry in the western section of the Site. An above ground tank farm was located in the central southern section of the Site, south of the access road formerly known as Creosote Road. The tank farm consisted of two 500,000 gallon, three 30,000 gallon, and four 150,000 gallon creosote tanks, and one 150,000 gallon zinc chloride tank. Suspected waste lagoons were located in the central section of the Site, north of the access road. The suspected lagoons were located east of Arco Drive and south of the current location of Frenchmens Road. Based on review of aerial photographs, it appears that the suspected lagoons were filled between 1969 and 1972. A warehouse owned by Spartan Chemical is currently situated over a portion of one of the suspected lagoons.

can we agree with this?

9 tanks total

Williams Ditch serves as the natural drainage in the area. When the Site operated as a wood treating facility, the ditch ran southwest to northeast along the western section of the Site. The ditch generally intersected what is now Arco Drive and Frenchmens Road at approximately a 45 degree angle. The affected portion of the ditch was rerouted during the redevelopment of the area.

2.2 Environmental Setting

The Site (Figure 1) is located on a relatively level piece of property approximately 4,500 feet north of Swan Creek and 8,000 feet south of the Ottawa River. The Site gently slopes toward Williams Ditch, which crosses the Site from southwest to northeast. Elevations across the site range from 620 to 625 mean sea level (msl). Elevations are referenced to the Lucas County Datum.

The Site lies within the Eastern Lake Plains of the Central Lowland physiographic province of North America. This glaciolacustrine landscape typically possesses low relief and low elevation. This flat surface was created due to several widely spaced periods of continental glaciation that supplied the largely unsorted, unstratified surficial drift deposits that cover the land in this area of the state. During the most recent stages of ice retreat, released water became trapped between the retreating ice mass to the north and the glacial deposits to the south and proglacial lakes formed. These lakes produced a thin veneer of lacustrine deposits over the glacial tills.

More specifically, the surficial lacustrine deposits consist of two distinct types: silt and clay deposits representing quiet water deposition; and sand deposits representing higher energy environments (i.e. near shore). The lacustrine deposits are approximately 12 to 14 feet thick at the Site and range from silt to clay to sand.

The Ohio Department of Natural Resource (ODNR), Division of Geological Survey, Drift Thickness Map of Lucas County, Ohio (ODNR, 1985) indicates that the Site sits on the southern slope of a buried valley where the drift thickness is approximately 125 feet. The buried valley trace is from the southwest to the northeast and reaches a maximum depth of approximately 150 feet north of the Site. The glacial drift overlies Devonian limestone or dolomite bedrock.

The ODNR Ground-Water Resources Map of Lucas County indicates that the principal aquifer beneath the Site is the thin, discontinuous sand and gravel lenses interbedded in the clay till filling the preglacial valley. Yields of approximately 10 to 20 gallons per minute (gpm) are encountered at depths of 120 feet or less.

Higher yields may be obtained from the underlying carbonate aquifer. The area in the vicinity of the Site is served by a municipal water supply system, and local use of ground water for potable consumption is expected to be minimal or non-existent.

2.3 Previous Environmental Investigations

A number of environmental investigations were conducted at the Site from 1987 to 1995. Based primarily on the "Initial Investigation and Preliminary Risk Assessment" report dated June 27, 1990. by Midwest Environmental Consultants, "The Hydrogeology and Creosote Contamination of an Abandoned Wood Preserving Plant Site at Toledo, Ohio," report dated December 1995, by Greg Victor Lesniak of the University of Toledo, and the 1993 Ohio EPA Site Inspection Report, results of soil, groundwater, and surface water samples collected from the Site indicated contamination from creosote compounds existed near the suspected lagoons, above ground storage tanks, and Williams Ditch. Some of the major individual polynuclear hydrocarbons (PAHs) detected were naphthalene, benzo(a)pyrene, phenanthrene, chrysene, fluoranthene, acenaphthalene, pyrene, and dibenzo(a,h)anthracene. Concentrations were detected in the range of 100s to 1,000s of parts per million (ppm) in the soil, sediment, and surface water. Investigations conducted by Ohio EPA in 1993, and the Ohio Department of Health in 1995, determined that sediments in some areas of Williams Ditch were saturated with creosote.

On September 25, 1997, following a significant rain event in Toledo, Ohio, the National Response Center was notified of the presence of a sheen of an unknown oil in Williams Ditch. On October 1, 1997, representatives of the U.S. EPA Emergency Response Branch evaluated conditions in Williams Ditch and observed an oil sheen upgradient of the National Super Service storm sewer outfall to Williams Ditch. The sheen was very heavy in the ditch east of Arco Drive (50 to 100 feet) and north (50 to 100 feet) of the location of the suspected creosote lagoon areas.

This area of heavy sheening is where a storm sewer apparently runs through the suspected lagoon area to Williams Ditch. It is also adjacent to a section of Frenchmens Road where the road surface has undergone failure and where visual indications of subsurface releases of oil to the road surface were readily apparent.

Based on the investigations and observations of the area of Williams Ditch in the Arco Industrial Park, the UAO was issued to Kerr-McGee to undertake removal actions necessary to protect public health, welfare, or the environment.

3.0 INITIAL EVALUATION

3.1 Exposure Assessment

In 1993, the Ohio EPA conducted a Site Inspection and discovered high concentrations of PAHs in the area of the suspected creosote lagoons, and identified the presence of PAHs in the sediment of Williams Ditch near the suspected lagoon area. In 1995, the Ohio Department of Health performed a Health Consultation at the Site and identified risks to persons who may have dermal contact with creosote-contaminated sediments and surface water of Williams Ditch. Therefore, the purpose of the exposure assessment is to identify the potentially exposed human receptors who could reasonably come into contact with the PAHs in soil, surface water and fugitive emissions (vapors and particulates) associated with the suspected lagoon area and the sediment and surface water in Williams Ditch. The focus of this initial exposure assessment is on human receptors; however, a more thorough exposure assessment, which will encompass other environmental media and environmental receptors will be conducted during the Engineering Evaluation/Cost Analysis (EE/CA).

The exposure assessment is an evaluation of the potential for human receptors to come in contact with chemicals of concern (COCs) present in the soil and ambient air (fugitive dusts and vapors) around the suspected lagoon area and the sediment and surface water of Williams Ditch. This process involves the characterization of the exposure setting based on the physical characteristics of the Site, the identifiable source areas of the COCs, and the human receptors on and near the Site. A site-specific conceptual model, which considers these physical parameters and identifies the potential receptor populations, land use scenarios, and exposure pathways is then developed. These factors are then evaluated to determine potential points of exposure (i.e., exposure pathways) applicable to each receptor.

[illegible] a ref to DOE guidance on risk assess in Hanford

The physical characteristics of the Site and the identified source areas of the COCs have been discussed previously in Section 2.0 of this work plan. Therefore, the focus of this section is the identification of the potential human receptor populations, land use scenarios, and exposure pathways associated with exposure to COCs in soil, air, sediment, and surface water.

3.2 Conceptual Site Model

The Conceptual Site Model (CSM) for the Toledo Tie Treatment Site, as shown on Figure 3, summarizes the processes by which chemicals detected in environmental media may impact potentially exposed populations. In order for an exposure pathway to be considered complete, there must be a chemical source/release, a receptor, and a transport vehicle/mechanism between the release point and the receptor.

The sources of chemical release are described in the CSM. This section evaluates how the chemicals present in these sources may be released to the environment and transported to a point where they could potentially impact a given population group. The evaluation of a chemical release and transport mechanism does not necessarily mean that a complete exposure pathway related to that mechanism exists.

The CSM is a schematic representation of the chemical source areas, chemical release mechanisms, environmental transport media, potential human intake routes, and potential human receptors. The purpose of the CSM is to provide a framework for problem definition, identify exposure pathways that may result in human health risks, indicate data gaps, and aid in identifying appropriate remediation measures. Chemical release mechanisms, environmental transport media, and potential human intake routes of the Site source materials are identified for each potentially exposed receptor and are discussed below. Identification of exposure to other environmental receptors are also shown, but will be discussed in the EE/CA.

The primary COCs for the Site, as stated in the UAO, are PAHs, including phenanthrene, naphthalene, acenaphthene, benzo(a)pyrene, fluoranthene, pyrene, chrysene, and dibenzo(a,h) anthracene. The CSM shows how these constituents may be governed by the following release mechanisms and transported to a point of exposure:

1. transport of soil by overland flow of surface runoff during precipitation events,
2. leaching and seeping to ground water and surface water,
3. ground water transport to surface water and sediment,
4. physical transport of sediment along Williams Ditch,
5. transport of chemicals in soil through volatilization or as particulate emissions, and
6. volatilization of chemicals in surface water to ambient air.

What about ecological effects?

3.3 Potential Human Receptors and Exposure Pathways

Exposure pathways describe the movement of chemicals from sources to locations (exposure points) where exposed populations (receptors) come in contact with the chemicals. This movement usually involves release of chemicals from the source to an intermediate environmental transport medium between source and receptor point. Exposure routes describe the modes of contact with, and intake of, environmental media and chemicals at exposure points. The following discussion focuses on an evaluation of exposure points and routes of exposure in order to determine which, if any, pathways of exposure exist with respect to the suspected lagoon area and Williams Ditch.

Exposure points are the environmental media that serve as the potential vehicle for contact between site-related chemicals and receptors. Exposure points for the Site are presented in the CSM. The points of human exposure for the Site are the soil within the suspected lagoon area, the sediment and surface water within Williams Ditch and the ambient air associated with these two areas. These exposure points are representative of possible existing conditions. Three factors must be present simultaneously for an exposure pathway to be considered complete. First, there must be a source or release of chemicals; second, a receptor must be present; and third, there must be a transport vehicle or mechanism by which the receptor can be exposed to the chemical. The following description of the CSM provides a presentation of the matrix of potential routes of exposure that are considered in the evaluation.

The Site is located in an industrial park that contains various businesses, estimated to currently employ 500 people. Depending on future remedial and/or redevelopment activities, the industrial park could add additional businesses and 25-30 percent more employees. In the early 1970s, the suspected lagoon area was filled in and a warehouse and associated parking lot were built over or near a portion of one of them. The remaining portion of the suspected lagoon area is currently an empty lot with vegetative covering.

Williams Ditch is approximately 20 feet wide. The bottom of the ditch ranges from four to eight feet below ground surface, with the greatest depth west of Arco Drive. Williams Ditch traverses the industrial park and passes by a residential area located approximately 1/4 mile to the northeast. Another residential area lies about 1/4 mile south. Access to the industrial park, as well as Williams Ditch, is currently unrestricted. Given the location of Williams Ditch, the nature of the surrounding area, and the continuing environmental investigations of the Site, the potentially-exposed populations and pathways of exposures include:

1. on-Site Industrial Worker through incidental ingestion, dermal contact, and inhalation of fugitive dusts and vapors of COCs in soil, surface water, and sediment;
2. on-Site Environmental Investigator through incidental ingestion, dermal contact, and inhalation of fugitive dusts and vapors of COCs in soil, surface water, and sediment;
3. on-Site Environmental Response Worker through incidental ingestion, dermal contact, and inhalation of fugitive dusts and vapors of COCs in soil, surface water, and sediment;
4. incidental Trespasser through incidental ingestion, dermal contact, and inhalation of fugitive dusts and vapors of COCs in soil, surface water, and sediment.

3.3.1 On-Site Industrial Worker

The industrial worker is assumed to work indoors. Outdoor activities for the industrial work would be limited to walking to and from a parking lot and maybe an occasional walk around the area. The industrial worker is not expected to perform any trenching or digging activities during the normal workday. Therefore, contact with chemicals in soil, surface water or ambient air would be a result of fugitive dust and/or volatile emissions around the suspected lagoon area or from Williams Ditch. Emissions could reach industrial workers either by being wind-driven or potential volatilization of PAHs near building air intakes, if present.

3.3.2 On-Site Environmental Investigation Workers

Individuals who participate in sampling and/or removal activities (such as drillers or environmental workers) could feasibly come into contact with chemicals in soil, air, sediment, and surface water. However, these workers are trained to avoid such contact and must take protective measures including the wearing of protective equipment and clothing to prevent chemical exposures.

3.3.3 On-Site Environmental Response Workers

Individuals may come onto the Site to perform removal activities and could feasibly come into contact with chemicals in soil, air, sediment, and surface water. However, these workers are trained to avoid such contact and must take protective measures including the wearing of protective equipment and clothing to prevent chemical exposures. Further, the workers could perform necessary excavation activities in machinery with enclosed operator cabs and purified\filtered ventilation systems which would provide additional protection against exposure.

3.3.4 Incidental Trespasser

Although Williams Ditch is located in an industrial park, access to the industrial area and to the ditch itself is currently unrestricted other than heavy vegetation in and along sections of the ditch, which preclude easy access. Residential land use is located approximately 1/4 mile away from the Site, so it is feasible that an incidental receptor could enter the Site and come into contact with the soil, air, sediments and surface water. It is assumed that these visits to the Site would occur in the spring and summer months, on an intermittent basis. It is anticipated that the incidental trespasser is exposed to worst case chemical concentrations. Thus, any chemicals subject to off-site airborne movement would be diluted, degraded, and decreased in concentration to some degree due to natural transport processes. Therefore, volatilization of PAHs near air intakes of neighboring businesses is not included in the evaluation, but is assumed to be encompassed by the maximally exposed receptor, the incidental trespasser.

Not sure how to make jump not approp here

Potential exposure to the COCs in soil and related ambient air would be minimal for an industrial worker or incidental trespasser due to the following: (1) vegetative covering which exists on the Site; (2) natural degradation and dilution of chemicals in air; (3) intermittent nature of the visits to and around the suspected lagoon areas. Personal protective equipment worn by the environmental investigator or environmental response worker during the removal activities would prevent exposure to the COCs in soil, air, sediment, and surface water. Similarly, the industrial worker is not expected to come into contact with the soil, sediments, and surface water during a normal workday. On the other hand, the sediment and surface water in Williams Ditch is currently exposed and access is unrestricted, thus, exposure is a possibility for an incidental trespasser on the Site. However, as detailed in Section 5.0 of this Work Plan, site security measures will be used to prevent incidental exposure to the sediments and surface water of Williams Ditch.

Long term solution?

→ child receptor exposure in summer

4.0 WORK PLAN APPROACH

Pursuant to Section 300.415(b)(3) of the National Contingency Plan (NCP), the objective of a removal action is to abate, prevent, minimize, stabilize, mitigate or eliminate the threat to public health, welfare or the environment. The imminent threats at the Site are the migration of coal tar creosote-related hazardous substances downstream in Williams Ditch and the unrestricted access. Migration of creosote-related contamination, either by gravity or transport in shallow groundwater to the ditch, is suspected. The work plan has been prepared to gather data to evaluate alternatives to prevent continued release of creosote-related contaminants to Williams Ditch.

all areas currently unrestricted

4.1 Time-Critical Removal Actions

Time-critical removal action activities are defined by Section V, 3.1 through 3.7 of the UAO. From a logistical standpoint, investigative activities to gather data for the EE/CA portion of the removal action will be integrated to the extent practical with those undertaken for the time-critical portion. Characterization of the sediments in Williams Ditch from Arco Drive to Hill Avenue, verification of the suspected immediate source, and characterization of the identified release mechanisms to the ditch are top priority and are to be conducted first. The specifics of these activities are included in Appendix A, the Field Sampling and Analysis Plan (HAI Document No. PWM001D.003). Health and safety considerations for these activities are discussed in the Health and Safety Plan, Appendix B (HAI Document No. PWM001T.049). Other than continuing to implement Task 3.3 of the UAO, the overall approach to implementing the time-critical removal action is:

at least one sample should be taken past Hill Street to confirm no migration

1. identify and assess potential release mechanisms of creosote-related contamination to Williams Ditch;

2. assess the extent and type of contamination in the sediments of Williams Ditch, determine the physical characteristics of the contaminated sediment, and assess the sediment thickness;

3. quantify the suspected lagoon area for lateral/vertical extent, and concurrent with this activity, gather qualitative data to evaluate removal alternatives which may include engineering controls;

4. evaluate sediment management alternatives;

5. implement selected alternative(s) to control the migration of creosote-related contaminants to Williams Ditch and/or the release of contaminants to the waters of Williams Ditch.

4.2 Data Requirements

Investigative activities conducted during the time-critical removal action will be conducted to:

why is this not being investigated

1. identify the contaminant release mechanisms to Williams Ditch and to assess whether there is a continuous pathway(s) from suspected lagoons to Williams Ditch (other than the storm sewer(s) backfill). This information will be used to evaluate alternatives to controlling suspected migration;

2. characterize the sediment and evaluate, to the extent they are required, materials management processes such as sediment removal volumes, dewatering, waste classification, filtrate management, and health and safety considerations. Grain size distribution, specific gravity, moisture content, organic content, dewatering characteristics, contaminant type/extent, and hazardous waste characterization are minimum data requirements;

3. confirm the geologic and hydrogeological site conditions in and around the suspected source area and Williams Ditch.

A Quality Assurance Project Plan (QAPP), describing data quality objectives and the measures taken to ensure data integrity, is attached as Appendix C (HAI Document No. PWM001D.001).

4.3 Schedule

The overall project schedule is presented on Figure 4. Based on the dates presented in the UAO for completion of a time-critical removal action work plan, health and safety plan, and an EE/CA work plan, it is possible that implementation of Site activities can occur within weeks of each other.? The goal is to coordinate field activities such that mobilization of investigative teams and contractors can occur to the maximum extent practical, concurrently with EE/CA related activities.

4.4 Community Relations

results of EPA work should be shared

Kerr-McGee will assemble a public relations team to disseminate information regarding the removal action to local businesses, residents in the area and the general public. A component of this plan will address health and safety considerations and the mechanism for coordinating with the Local Emergency Planning Committee and State Emergency Response Commission.

4.5 Reporting

Pursuant to Section V 3.5 of the UAO, monthly status reports identifying activities conducted, significant developments during the reporting period, problems encountered, resolution of problems, key communications during the period, analytical data collected, and planned activities for the next period will be prepared by the Project Coordinator or the lead environmental contractor. Weekly reports documenting the status of Task 3 will continue to be prepared and submitted by the Project Coordinator.

4.6 Project Personnel

Key project personnel can be contacted at the following numbers:

Personnel	Contact Number	Affiliation
Ralph Dollhopf	313-692-7682 800-375-8903 (pager)	U.S. EPA On-Scene Coordinator
Deborah Orr	312-886-7576	U.S. EPA Remedial Project Manager
Ron Nabors	419-352-8461	Ohio EPA Project Contact
Peter Goetz	405-447-8300 405-833-9009 (cellular) 888-732-8904 (pager)	Kerr-McGee Project Coordinator
Scott Lockhart, P.E.	419-241-7171 419-262-9318 (cellular) 419-323-1396 (pager)	Hull & Associates, Inc. Project Manager
Kevin Wildman	614-793-8777	Hull & Associates, Inc., QA Officer

Personnel	Contact Number	Affiliation
A. Keith Watson	405-270-3747	Kerr-McGee Project Manager
Christopher Schraff	614-227-2097	Legal Counsel for Kerr-McGee
Jeff Arp	614-793-8777	Hull & Associates, Inc., Field Operations Coordinator

Peter Goetz, as Project Coordinator, will serve as a central point of contact between Kerr-McGee and the EPA. He will provide review and coordination of HAI and other contractors which may be retained by Kerr-McGee to comply with the UAO.

Hull & Associates, Inc. has been retained by Kerr-McGee to complete the project plans required by Section V, Items 3.1, 3.2, and 3.3 of the UAO. HAI will direct and coordinate the collection and evaluation of additional field data that will be needed to implement the tasks described in Section 1.0 of this work plan. Mr. Scott Lockhart, P.E., will serve as the Project Manager for HAI and will be responsible for the technical and administrative aspects of the project, communication with the Project Coordinator and Kerr-McGee, and coordination as needed with the EPA during the course of developing and implementing project plans. Technical support and peer review will be provided by Mr. Craig Kasper, P.E., of HAI.

5.0 REMOVAL ACTION ACTIVITIES

5.1 Task 1 - Health and Safety Plan

A detailed Health and Safety Plan, addressing the issues which may arise during the implementation of the removal action and investigative activities, is included in Appendix B.

5.2 Task 2 - Site Security Measures

Initial site security during implementation of Tasks 3, 4, and 6 will be established by erecting plastic security fencing in the locations shown on Figure 5. These locations were selected based upon visual observations and in consideration of the initial CSM. Signs will be placed where they are readily visible to the public. Standard red, white and black signs, stating "Danger...Authorized Personnel Only" will be posted in the locations shown on Figure 5. Initially, those areas most directly affected will be secured using plastic fencing to restrict access to water and sediments in the Ditch. Security will be implemented in phases and escalated commensurate with the level of risk. Decisions to modify site security measures will be made by the Project Coordinator.

The level of security will escalate in the following manner:

Tasks 3, 4 and 6

1. Fencing/Signs
2. Controlled Access Point

Tasks 5 and 7

1. Fencing/Signs
2. Controlled Access Point
3. Periodic non-operational hours patrols

Periodic patrols will be provided once heavy equipment begins to be staged on-site. Additional discussions of site control mechanisms are included in Section 6.2 of the Health & Safety Plan, Appendix B.

5.3 Task 3 - Contain and Recover Creosote Migrating Downstream of Williams Ditch

Oil and/or oil sheen containment and recovery will continue as prescribed in Kerr-McGee's correspondence to the U.S. EPA of February 5, 1998. The installation of siphon dams is planned and upon completion of Task 6, re-routing of the ditch channel beyond the affected area will be evaluated. In the interim, on-site treatment of collected surface water may occur using an oil/water separator, skimmer or similar device. Physical movement of oil and/or oil sheen using leaf blowers or other means will be used to force product to the hard booms currently in place to facilitate effective recovery to the maximum extent practical.

5.4 Task 4 - Identify Immediate Source Areas

This task will identify the immediate source areas of contamination that are contributing to the creosote and cresote-related contamination in Williams Ditch. The task will involve conducting a subsurface investigation of the soil in and around the suspected lagoon areas, which are suspected to be the primary sources for the creosote contamination in Williams Ditch. Additional probing will occur along storm sewers and north and west of Williams Ditch as indicated on Figure 6.

The investigation is detailed in Appendix A, the Field Sampling and Analysis Plan dated April 1998. The investigation involves using a cone penetrometer (CPT) drilling and sampling technique in conjunction with a Laser Induced Fluoresence (LIF) field screening method to develop a profile of the creosote concentrations around the suspected lagoon areas. Confirmation of the CPT/LIF method will be done using analytical methods and test pits. This qualitative/quantitative approach is intended to provide the flexibility to modify the number of test holes in the field in response to conditions encountered. Drilling locations are shown on Figure 6. This task will also incorporate a review of historical aerial photographs of the site and surroundings, technical reports, and available historical information regarding site operations. Depending upon the quality of the data generated by the initial probing, electrical resistivity geophysical methods may be employed to further delineate the lateral limits of the suspected lagoons. The additional geophysical work would be performed if the review of historical data and intrusive field data are inconclusive or do not meet the data quality objectives defined in the QAPP. Results of the investigation will be used in conjunction with data collected during the implementation of the EE/CA to develop a plan to address identified source areas.

5.5 Task 5 - Remove Immediate Source Areas or Implement Engineering Controls

As discussed in the removal action approach, and as shown on the project schedule, Task 5 (and Task 7 - addressing sediments in Williams Ditch) will be conducted after sufficient data have been collected. At a minimum, an understanding of the extent of source areas, confirmation of the contaminant release mechanisms to the ditch, site geologic and hydrogeologic conditions, and characterization of the source will be needed. Sampling and evaluation for these parameters will be completed during the first phase of the time-critical removal action. This will allow the selection of the most appropriate removal action alternative(s) based on an evaluation of technical feasibility, implementation, and cost effectiveness.

5.6 Task 6 - Characterize Extent of Coal Tar Creosote Contamination in Sediments and Surface Water in Williams Ditch

Sediment and surface water samples will be collected from various locations along Williams Ditch to characterize the extent of the creosote contamination as detailed in Appendix A, Field Sampling and Analysis Plan, dated April 1998. The locations of the sediment samples are shown on Figure 7. The results of the sampling will be used to evaluate and select the most appropriate removal action alternative(s) that will be implemented as part of Task 7. Results of this investigation will also be used to determine additional Site security measures, if any, to be applied along Williams Ditch.

5.7 Task 7 - Remove or Implement Engineering Controls to Address Coal Tar Creosote Contamination in Williams Ditch Sediments

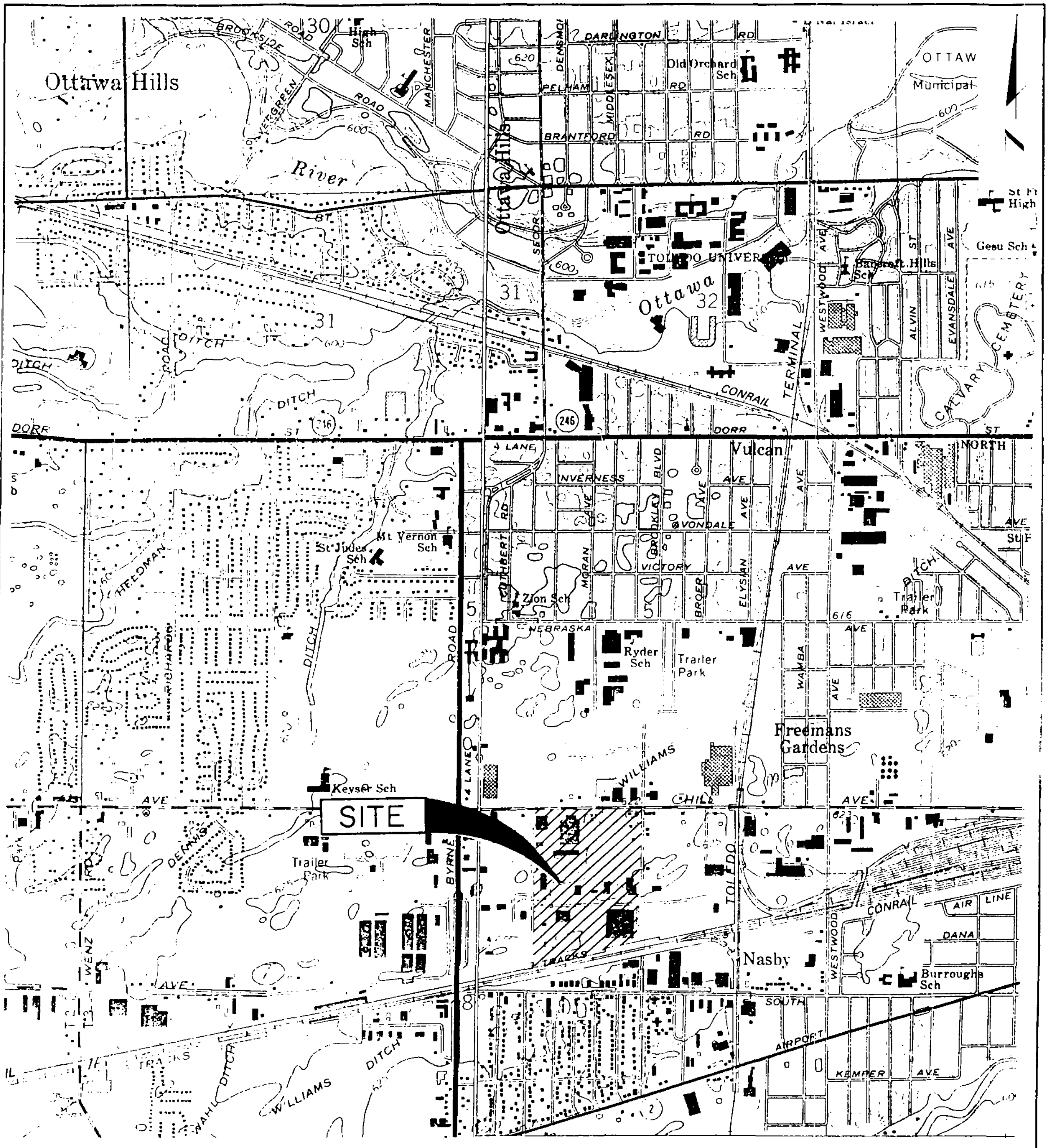
Sampling results collected during Task 6 will be used to evaluate removal and/or engineering controls for the sediment contamination in Williams Ditch. The evaluation and implementation of Task 7 will be conducted once adequate data are collected and evaluated. As discussed earlier, removal of the immediate sources as described in Task 5 and removal of creosote contamination from Williams Ditch sediments and/or use of engineering controls cannot be effectively evaluated until sampling is completed to characterize the extent of contamination in sediments and surface water.

6.0 REFERENCES

Administrative Record, Toledo Tie Treatment Site, U.S. EPA Region 5. Document No. V-W-98-C-444.

"Initial Investigation and Preliminary Risk Assessment, 367 Arco Drive, Toledo, Ohio 43607," dated June 27, 1990, by Midwest Environmental Consultants, Inc.

"The Hydrogeology and Creosote Contamination of an Abandoned Wood Preserving Plant Site at Toledo, Ohio," Greg Victor Lesniak, Submitted in partial fulfillment of the requirements for the Master of Science Degree in Geology, The University of Toledo, December 1995.



SCALE: 1" = 2,000'
SOURCE: USGS 7.5 MIN QUADRANGLE
TOLEDO, OHIO - MICHIGAN 1965
(PHOTOREVISED 1980)
LATITUDE 4137'30"
LONGITUDE 8330"

SYLVANIA, OHIO - MICHIGAN 1965
(PHOTOREVISED 1980)
LATITUDE 3957'38"
LONGITUDE 8305'42"

PWM\556D009
02/9/98 BKAISER

FIGURE 1

Hull & Associates, Inc.
DUBLIN, OHIO

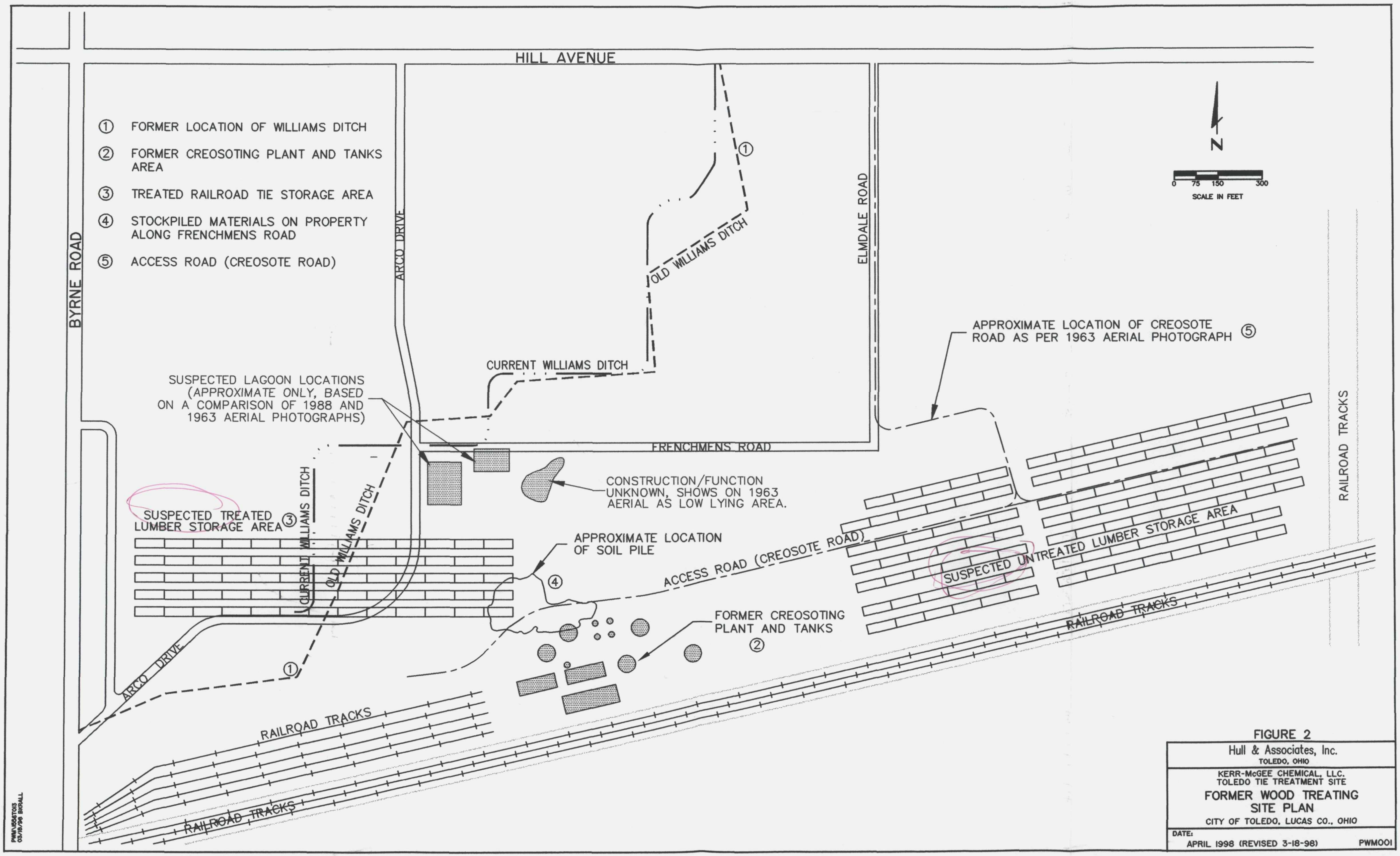
KERR-McGEE CHEMICALS, LLC.
TOLEDO TIE TREATMENT SITE

SITE LOCATION MAP

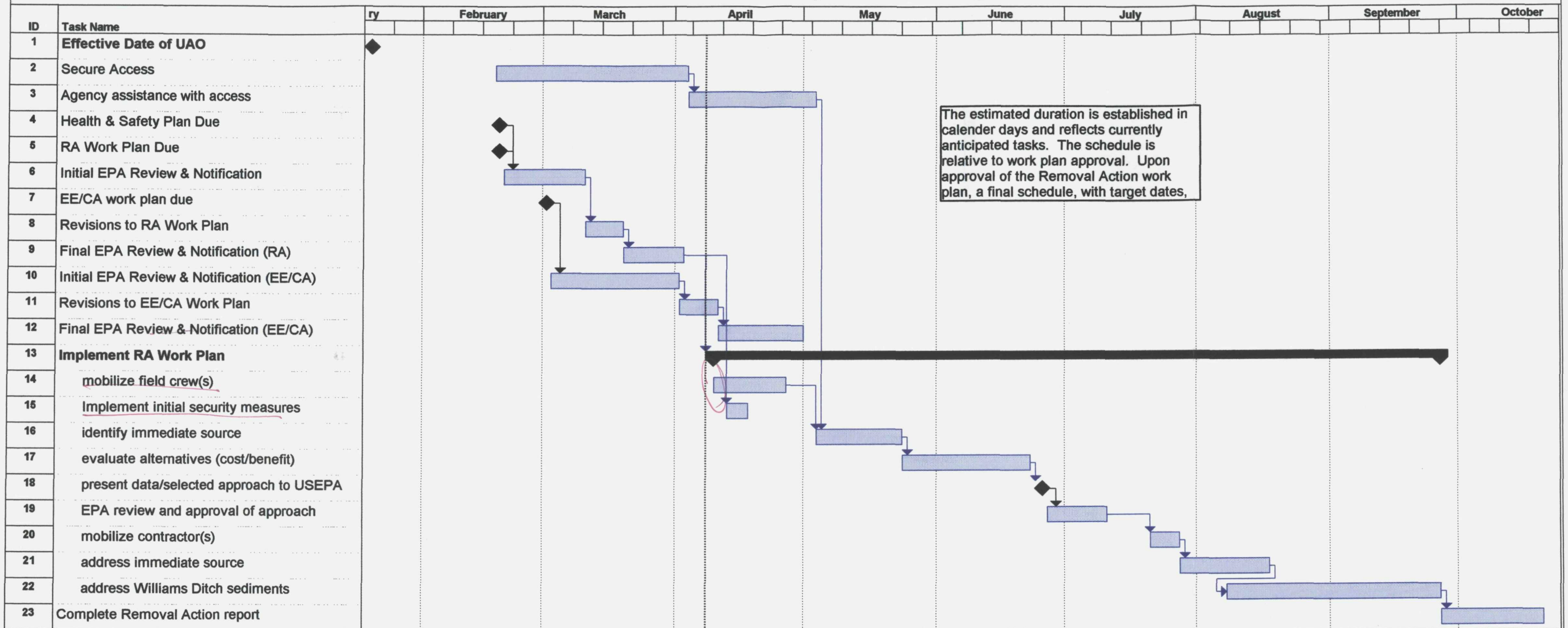
CITY OF TOLEDO, LUCAS CO., OHIO

DATE: APRIL 1998

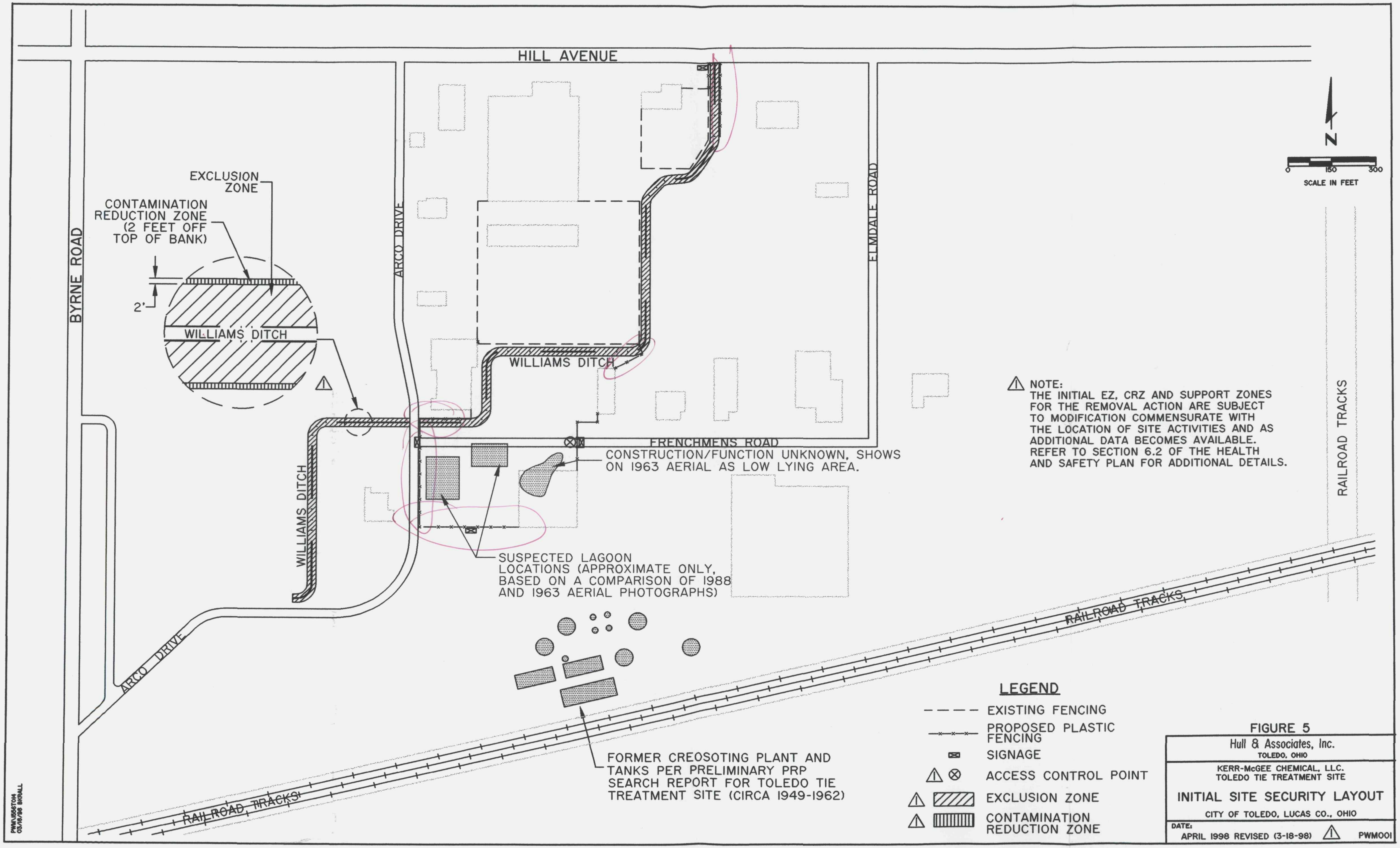
PWM 001

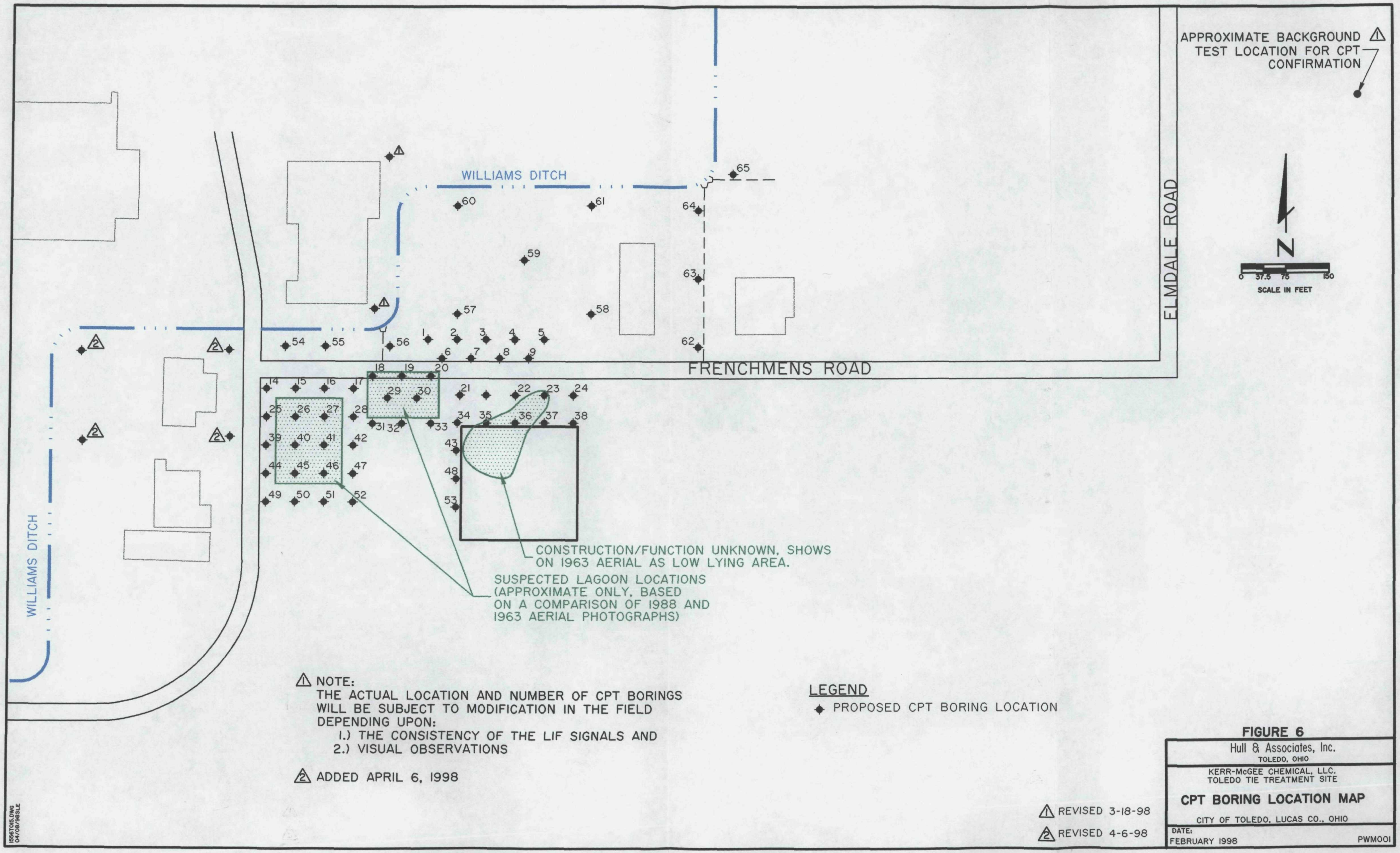

HILL AVENUE
BYRNE ROAD
ARCO DRIVE
ELMDALE ROAD
FRENCHMENS ROAD
RAILROAD TRACKS
① FORMER LOCATION OF WILLIAMS DITCH
② FORMER CREOSOTING PLANT AND TANKS AREA
③ TREATED RAILROAD TIE STORAGE AREA
④ STOCKPILED MATERIALS ON PROPERTY ALONG FRENCHMENS ROAD
⑤ ACCESS ROAD (CREOSOTE ROAD)
N
0 75 150 300
SCALE IN FEET
OLD WILLIAMS DITCH
CURRENT WILLIAMS DITCH
APPROXIMATE LOCATION OF CREOSOTE ROAD AS PER 1963 AERIAL PHOTOGRAPH ⑤
SUSPECTED LAGOON LOCATIONS (APPROXIMATE ONLY, BASED ON A COMPARISON OF 1988 AND 1963 AERIAL PHOTOGRAPHS)
CONSTRUCTION/FUNCTION UNKNOWN, SHOWS ON 1963 AERIAL AS LOW LYING AREA.
SUSPECTED TREATED LUMBER STORAGE AREA ③
APPROXIMATE LOCATION OF SOIL PILE ④
ACCESS ROAD (CREOSOTE ROAD)
SUSPECTED UNTREATED LUMBER STORAGE AREA
FORMER CREOSOTING PLANT AND TANKS ②
FIGURE 2
Hull & Associates, Inc.
TOLEDO, OHIO
KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
FORMER WOOD TREATING SITE PLAN
CITY OF TOLEDO, LUCAS CO., OHIO
DATE:
APRIL 1998 (REVISED 3-18-98)
PWM001

Kerr-McGee Chemical LLC
Toledo Tie Treatment Site
Proposed Removal Action Project Schedule - Figure 4



Project: Removal Action Project Project No.: PWM001 Date: Wed 4/8/98	Task Milestone Summary


HILL AVENUE
BYRNE ROAD
ARCO DRIVE
ELMDALE ROAD
FRENCHMENS ROAD
WILLIAMS DITCH
RAILROAD TRACKS
N
0 150 300
SCALE IN FEET
EXCLUSION ZONE
CONTAMINATION REDUCTION ZONE (2 FEET OFF TOP OF BANK)
2'
CONSTRUCTION/FUNCTION UNKNOWN, SHOWS ON 1963 AERIAL AS LOW LYING AREA.
SUSPECTED LAGOON LOCATIONS (APPROXIMATE ONLY, BASED ON A COMPARISON OF 1988 AND 1963 AERIAL PHOTOGRAPHS)
FORMER CREOSOTING PLANT AND TANKS PER PRELIMINARY PRP SEARCH REPORT FOR TOLEDO TIE TREATMENT SITE (CIRCA 1949-1962)
NOTE: THE INITIAL EZ, CRZ AND SUPPORT ZONES FOR THE REMOVAL ACTION ARE SUBJECT TO MODIFICATION COMMENSURATE WITH THE LOCATION OF SITE ACTIVITIES AND AS ADDITIONAL DATA BECOMES AVAILABLE. REFER TO SECTION 6.2 OF THE HEALTH AND SAFETY PLAN FOR ADDITIONAL DETAILS.
LEGEND
EXISTING FENCING
PROPOSED PLASTIC FENCING
SIGNAGE
ACCESS CONTROL POINT
EXCLUSION ZONE
CONTAMINATION REDUCTION ZONE
FIGURE 5
Hull & Associates, Inc.
TOLEDO, OHIO
KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
INITIAL SITE SECURITY LAYOUT
CITY OF TOLEDO, LUCAS CO., OHIO
DATE:
APRIL 1998 REVISED (3-18-98)
PWM001



APPROXIMATE BACKGROUND TEST LOCATION FOR CPT CONFIRMATION
WILLIAMS DITCH
WILLIAMS DITCH
ELMDALE ROAD
FRENCHMENS ROAD
SCALE IN FEET
0 37.5 75 150
N
CONSTRUCTION/FUNCTION UNKNOWN, SHOWS ON 1963 AERIAL AS LOW LYING AREA.
SUSPECTED LAGOON LOCATIONS (APPROXIMATE ONLY, BASED ON A COMPARISON OF 1988 AND 1963 AERIAL PHOTOGRAPHS)
NOTE:
THE ACTUAL LOCATION AND NUMBER OF CPT BORINGS WILL BE SUBJECT TO MODIFICATION IN THE FIELD DEPENDING UPON:
1.) THE CONSISTENCY OF THE LIF SIGNALS AND
2.) VISUAL OBSERVATIONS
ADDED APRIL 6, 1998
LEGEND
PROPOSED CPT BORING LOCATION
REVISED 3-18-98
REVISED 4-6-98
FIGURE 6
Hull & Associates, Inc.
TOLEDO, OHIO
KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
CPT BORING LOCATION MAP
CITY OF TOLEDO, LUCAS CO., OHIO
DATE:
FEBRUARY 1998
PWM001

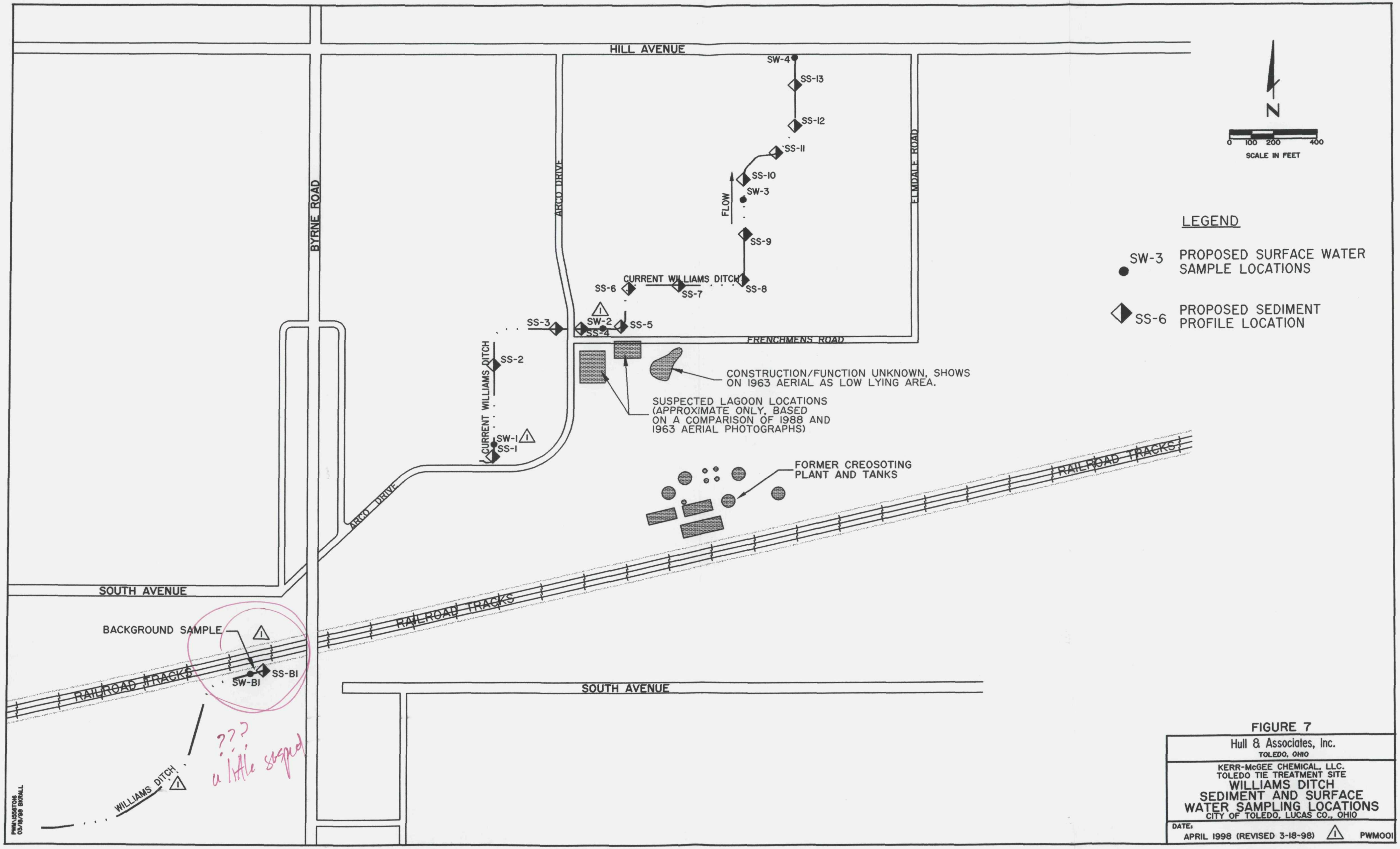


FIGURE 7

Hull & Associates, Inc.
TOLEDO, OHIO

KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
WILLIAMS DITCH
SEDIMENT AND SURFACE WATER SAMPLING LOCATIONS
CITY OF TOLEDO, LUCAS CO., OHIO

DATE:
APRIL 1998 (REVISED 3-18-98) PWM001